

FILED MAIL SECTION FCC 96-54  
FEB 21 3 10 PM '96

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of )  
 )  
Amendment of the Commission's Rules to Establish ) CC Docket No. 92-166  
Rules and Policies Pertaining to a Mobile Satellite )  
Service in the 1610-1626.5/2483.5-2500 MHz )  
Frequency Band )

**DOCKET FILE COPY ORIGINAL**

**MEMORANDUM OPINION AND ORDER**

Adopted: February 12, 1996

Released: February 15, 1996

By the Commission:

**I. INTRODUCTION**

1. By this Memorandum Opinion and Order, the Commission continues the development of a regulatory structure conducive to the rapid and successful deployment of the global mobile satellite service systems known as "Big LEOs."<sup>1</sup> These systems have a wide range of potentially revolutionary applications, including: 1) providing a comparatively low-cost means of connecting to the world-wide public telephone network, particularly in areas too remote or underpopulated to receive service through wires; 2) allowing global "roaming" by users of mobile phones, including hand-held phones; 3) providing "fill-in" service for areas not reached by terrestrial "wireless" services such as cellular telephones; and 4) providing for global competition in telephone and data services, both satellite and terrestrially based. A prior Report and Order<sup>2</sup> in this proceeding adopted rules and policies for the Big LEO service.

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<sup>1</sup> In general parlance, the term refers to low-Earth orbit ("LEO") mobile satellite service ("MSS") systems operating in frequencies above 1 GHz. As used in this Memorandum Opinion and Order, it refers specifically to LEO MSS in the 1.6/2.4 GHz frequency bands.

<sup>2</sup> Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Band, 9 F.C.C.Rcd. 5936 (1994)("Big LEO Report").

By this order we address requests for reconsideration of that decision,<sup>3</sup> and make minor changes and clarifications to the rules and policies we adopted.

2. The particular changes adopted here address concerns raised by the Big LEO licensees and applicants. Specifically, we conclude that the "interim plan," designed to avoid interference between the Big LEO systems and the Russian Global Navigation Satellite System ("GLONASS"), is unnecessary at this time. We also clarify our views concerning position determination capabilities in Big LEO earth terminals, and modifications to feeder link proposals. In order to ensure that United States licensees do not engage in practices that are contrary to the goal of competitive markets world-wide, we also adopt a rule concerning exclusive arrangements for provision of Big LEO service. We also clarify our "two-tiered" processing scheme for financial qualifications. In addition we make a number of minor editorial and clarifying changes to our technical rules.

3. We decline to adopt a number of other changes proposed by the applicants and licensees. We leave intact the protections to radio astronomy -- protections developed in negotiations between Big LEO and radio astronomy interests. We decline at this time to adopt certain technical rules concerning interference between the competing Big LEO systems in order not to preempt prematurely private negotiations. We also decline to modify our construction milestone requirements or system replacement procedures.

## II. BACKGROUND

4. The Big LEO Order resulted from a series of actions beginning in 1990, when Ellipsat Corporation, now known as MCHI, and Motorola Satellite Communications Inc. filed applications to provide mobile satellite service ("MSS") above 1 GHz using LEO satellites. The Commission established a deadline for filing applications to be considered simultaneously with Ellipsat's and Motorola's. Constellation, LQP, TRW, and AMSC filed applications by that deadline.

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<sup>3</sup> AMSC Subsidiary Corp., Constellation Communications, Inc., Loral/Qualcomm Partnership, L.P. ("LQP"), Motorola, Inc., and TRW Inc. filed petitions for reconsideration and/or clarification. AMSC, Constellation, LQP, TRW, and Motorola filed timely oppositions. AMSC, Constellation, LQP, Motorola, and TRW replied. The Committee on Radio Frequencies ("CORF") operated by the National Council for the National Academy of Sciences, filed an opposition, and a motion for leave to file that opposition, nine days late. In view of the fact that relevant parties were able to reply to that opposition on a timely basis, we have considered the opposition. Mobile Communications Holdings, Inc. ("MCHI") filed a petition for review with the Court of Appeals for the District of Columbia Circuit. By order of the court dated December 13, 1994, the case was held in abeyance pending completion of proceedings before the Commission.

5. At the 1992 World Administrative Radio Conference, the 1610-1626.5 MHz band was allocated on a co-primary basis with other radio services for MSS operations in the Earth-to-space direction, and the 2483.5-2500 MHz band was allocated on a co-primary basis for MSS operations in the space-to-Earth direction. The 1613.8-1626.5 MHz band was also allocated, on a secondary basis, for MSS operations in the space-to-Earth direction. The United States adopted conforming changes to its domestic frequency allocation table in December 1993.<sup>4</sup>

6. To develop technical and licensing rules, the FCC conducted a "negotiated rule making proceeding" from January through April 1993. The proceeding provided the applicants and other interested parties the opportunity to develop recommendations to the Commission on issues such as compatibility among the proposed MSS systems, sharing between the proposed MSS systems and other services, and operation of inter-satellite and feeder links. The negotiated rule making proceeding resulted in consensus recommendations on a number of these issues.

7. However, no consensus could be reached on how to accommodate the six systems and three different system types proposed by the applicants. Four applicants (Constellation, MCHI, LQP, and TRW) proposed to use Code Division Multiple Access (CDMA) technology. CDMA systems are capable of sharing use of the same frequencies. These CDMA applicants proposed to use the 1610-1626.5 MHz frequencies for Earth-to-space operations, and the 2483.5-2500 MHz frequencies for space-to-Earth operations. Motorola proposed a time division multiple access/frequency division multiple access (TDMA/FDMA) system operating bi-directionally in a portion of the 1610-1626.5 MHz band. TDMA/FDMA systems do not allow frequency sharing with other systems. Instead, they require separate dedicated frequencies. AMSC proposed to use either TDMA/FDMA or CDMA technology in the 1616.5-1626.5 MHz frequency band, as part of its authorized but not yet operating geostationary system in the 1545-1559/1646.5-1660.5 MHz frequency bands.

8. The Big LEO Order adopted rules for the Big LEO service. The FCC designated the 1621.35-1626.5 MHz band for TDMA/FDMA operations, the 1610-1621.35 MHz and 2483.5-2500 MHz bands for CDMA operations. This basic frequency sharing plan is subject to conditions, including an interim plan to address potential incompatibilities with the Russian Global Navigation System (GLONASS). The Commission concluded the basic plan could accommodate 4 CDMA systems and one TDMA/FDMA system.

9. The rules required that applicants propose a non-geostationary system capable of serving all areas of the fifty United States, Puerto Rico, and the U.S. Virgin Islands continuously, and in all areas of the world as far north as 70° latitude, and as far south as 55° latitude, for 75% of the day. The rules also required applicants to demonstrate they have

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<sup>4</sup> See Allocation of the 1610-1626.5/2483.5-2500 MHz Band to Mobile Satellite Service, 9 F.C.C.Rcd. 536 (1993), recon. granted in part, 10 F.C.C.Rcd. 3169 (1995).

sufficient financial resources to construct, launch, and operate for one year the satellites in their system.

10. The Commission concluded that, if all six applicants complied with the new rules, the five available licenses would be awarded through an auction. We gave the applicants until November 16, 1994 to amend their applications to conform to the new rules. Applicants had the option, however, of delaying their financial showings for one year.

11. On January 31, 1995, the International Bureau issued licenses to LQP, Motorola, and TRW, for construction, launch, and operation of satellites to provide service in the 1.6/2.4 GHz bands.<sup>5</sup> The Bureau also found that Constellation and MCHI needed additional time to establish they were financially qualified, and deferred further consideration of their applications until January 31, 1996.<sup>6</sup> AMSC elected to defer its financial showing. Each of the five orders issued on January 31, 1995, is the subject of a petition for reconsideration or application for review.

### III. DISCUSSION

#### A. Interservice Sharing Issues

12. The Interim Sharing Plan and GLONASS Operations. The Russian Global Navigation Satellite System (GLONASS) currently operates at frequencies of 1606-1616 MHz. GLONASS operations are being moved to frequencies below 1606 MHz, but until this transition is complete, protection of GLONASS operations in the United States could make some frequencies unavailable for Big LEO use, and in particular the frequencies at 1610-1612 MHz. Under the basic sharing plan, this 2 MHz shortfall would fall solely in the 11.35 MHz of spectrum from 1610-1621.35 MHz to be used by the CDMA applicants. In the Big LEO Order, the Commission determined that if GLONASS is incorporated into a system for aeronautical navigation, and particularly for aircraft precision approach and terminal communications, protection of GLONASS operations in the U.S. might be required. Under such circumstances, the Commission stated, an adjustment in the basic sharing plan would be appropriate until GLONASS operations move to frequencies below 1606 MHz. Specifically, the Commission indicated that CDMA operations would be permitted in 1.25 MHz of spectrum, from 1621.35-1622.60 MHz, designated under the basic plan for FDMA/TDMA operations. It indicated that this adjustment would allow the CDMA applicants one additional

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<sup>5</sup> See Loral/Qualcomm Partnership, L.P., 10 F.C.C.Rcd. 2333 (Int'l Bur. 1995); Motorola Satellite Communications, Inc., 10 F.C.C.Rcd. 2268 (Int'l Bur. 1995); TRW Inc., 10 F.C.C.Rcd. 2263 (Int'l Bur. 1995).

<sup>6</sup> Constellation Communications, Inc., 10 F.C.C.Rcd. 2258 (Int'l Bur. 1995); Mobile Communications Holdings, Inc., 10 F.C.C.Rcd. 2274 (Int'l Bur. 1995).

channel each.

13. LQP and Motorola seek reconsideration of the interim sharing plan. LQP argues that the sharing plan should not protect any GLONASS operations above 1606 MHz, and that, in any event, the sharing plan is premature. It suggests that an interim plan, if needed at all, should only be adopted after RTCA, Inc., develops protection criteria for GLONASS receivers.<sup>7</sup> Similarly, Motorola argues that GLONASS receivers are not currently entitled to protection other than those provided by the ITU regulations and coordination process, and that the interim plan is, therefore, unnecessary. Motorola argues that the 4 MHz guardband between CDMA and GLONASS operations on which the sharing plan is premised is unjustified by the record, and that until protection values between GLONASS receivers and MSS terminals are adopted, the Commission should, at most, condition Big LEO licenses on compliance with future out-of-band emission standards.<sup>8</sup> Motorola also argues that the sharing plan disproportionately affects its system. It observes that the interim plan was based on earlier CDMA channeling plans which have since been substantially modified by the CDMA applicants.

14. On reconsideration, we conclude that the interim sharing plan is unnecessary to protect GLONASS operations in the United States at this time. GLONASS has not been incorporated into or accepted as part of the global navigation satellite system for aeronautical navigation either domestically or through the International Civil Aviation Organization, and at this time there is no date certain by which that may occur. As Motorola correctly observes, the interim plan was premised on the potential incorporation of GLONASS into a global aeronautical navigation system. Thus, given the substantial uncertainty as to whether protection of GLONASS will ever be necessary in any configuration other than its final configuration at frequencies below 1606 MHz, we conclude that no interim protection of GLONASS is necessary in the United States. We need not, therefore, address whether adjustments to the interim plan might be necessary or appropriate in light of changes in the system design of the CDMA applicants, or whether any other adjustments of the interim plan are warranted. We note, however, that in the event other administrations require protection of GLONASS in their own airspace at frequencies other than its final frequency configuration, our position in any ITU frequency coordination of our Big LEO systems with GLONASS

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<sup>7</sup> RTCA, Inc., is an advisory committee to the Federal Aviation Administration, and is studying out-of-band emissions from mobile earth stations and other potential interference sources as they affect global navigation satellite service receivers, including GLONASS receivers.

<sup>8</sup> Radio transmitters are typically designed to concentrate the signal transmitted in a specific frequency band. However, the transmitter is not technically capable of completely limiting all signals it generates to the specific frequency band. The signals generated in frequency bands outside the intended bands are referred to as "out-of-band emissions."

operations will, like the interim plan, distribute the burden of that protection on all of the Big LEO systems.

15. Standards for Protection of Radio Astronomy. The Big LEO Order adopted rules concerning the protection of radio astronomy in the 1610.6-1613.8 MHz frequency band. Radio astronomy is allocated on a co-primary basis with mobile satellite services, and is, therefore, entitled to protection from harmful interference. The Commission adopted fixed-radius protection zones for radio astronomy sites. Within those zones, during periods of radio astronomy observations, mobile earth stations may not operate in the frequencies 1610.6-1613.8. The Commission required that mobile earth stations have position determination capabilities to ensure compliance with these limits.<sup>9</sup> The Commission also adopted out-of-band emission limits. The limits require that mobile earth stations licensed in the 1610-1626.5 MHz band produce power flux densities that do not exceed, at the radio astronomy site, the power flux density that would be produced by a mobile earth station operating in the 1610.6-1613.8 MHz bands at the edge of the site's protection zone. As an alternative means of compliance with the out-of-band emission limits, the Commission specified fixed protection zones around radio astronomy sites. The Commission also indicated it would consider smaller geographic protection zones or the use of beacon-actuated systems<sup>10</sup> if coordination agreements could be reached with radio astronomy interests, specifically the Electromagnetic Spectrum Management Unit (ESMU) of the National Science Foundation.

16. TRW and Constellation seek reconsideration of these requirements. TRW observes that it intends to employ a beacon-actuated system, and urges the Commission to reconsider the requirement that licensees using such systems reach a coordination agreement with ESMU. It argues that ESMU should not receive what amounts to an effective veto power over beacon-actuated systems, that the Commission should clarify that it will exercise its power to waive the coordination requirement if necessary, and that the Commission should be the final arbiter of any dispute concerning the adequacy of protection to radio astronomy by such beacon-actuated systems. TRW also seeks clarification that a system need not use other position determination techniques if authorized to use a beacon-actuated system. TRW

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<sup>9</sup> Position determination equipment allows a mobile terminal to calculate, based on signals received from multiple satellite or ground-based stations, its geographic location and altitude. This information can then be used to determine if the mobile terminal is within the protected radio astronomy zone, and, if it is, to avoid transmitting signals that would cause harmful interference. In addition to GPS, the satellite-based global position system, and LORAN, a terrestrially based position determination system, Big LEO satellites may also, depending on system design, act as a source of position determination information for mobile terminals.

<sup>10</sup> A "beacon-actuated system" uses a radio signal generated at or near the radio astronomy site. A mobile earth terminal receiving this signal is prevented from transmitting if doing so would interfere with radio astronomy.

also argues that, as an alternative means of limiting out-of-band interference, the Commission allow compliance based on limits defined in terms of a one megahertz reference bandwidth, rather than a more restrictive, worst-case, per-hertz value.

17. Constellation also seeks reconsideration of the requirement that mobile transceivers have built-in position determination capabilities under all circumstances. Constellation argues that the Commission should allow transceivers to be built without such capabilities, so long as they also are incapable of transmitting in the 1610.6-1613.8 MHz bands. Constellation notes that such transceivers would be substantially less expensive and represent a reasonable method of providing low-cost MSS, especially during the early phases of Big LEO development. Constellation also argues that transceivers should not be required to provide out-of-band protection to radio astronomy, and opines that International Telecommunication Union regulations preclude such protection.<sup>11</sup>

18. CORF, representing radio astronomy interests, opposes these requests. With respect to beacon-actuated systems, it states that TRW's requested clarifications are unnecessary, since there is no disagreement or ambiguity on the points raised. LQP also opposes TRW's clarification request. CORF also opposes TRW's request to use a one megahertz reference bandwidth, arguing that, because radio astronomy measurements can be made in extremely narrow bandwidths, an out-of-band emission limit based on a worst case, per-hertz value is correct. LQP suggests, as an alternative, the use of an assumed spectral line channel bandwidth of 20 kHz. CORF also opposes Constellation's request to eliminate out-of-band emission limits, noting that ITU RR 733E requires such protection.<sup>12</sup> LQP argues that eliminating the requirement that transceivers have position determination capabilities would unduly complicate coordination among the CDMA applicants.

19. TRW correctly observes that, with respect to protection of radio astronomy facilities, the use of beacon-actuated systems is an alternative to the use of other position-determination techniques. Therefore, earth terminals employing beacon-actuated radio astronomy protection need not have other position-determination capabilities, unless such

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<sup>11</sup> ITU RR 344 provides:

For the purpose of resolving cases of harmful interference, the radio astronomy service shall be treated as a radiocommunication service. However, protection from services in other bands shall be afforded the radio astronomy service only to the extent that such services are afforded protection from each other.

<sup>12</sup> RR 733E provides that:

Harmful interference shall not be caused to stations of the radio astronomy service using the band 1610.6-1613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services.

capabilities are required for other reasons.<sup>13</sup> Furthermore, we will grant Constellation's request to clarify that mobile earth terminals not capable of transmitting in the 1610.6-1613.8 MHz bands need not include position determination capabilities for the purpose of complying with our rules concerning protection of radio astronomy services. In response to LQP's concern that it would unduly complicate the coordination process among the CDMA applicants to authorize mobile earth terminals to operate only in the frequencies above 1613.8 MHz, we clarify that licensees choosing to construct earth terminals that are not capable of operating in the 1610.6-1613.8 MHz band will not be allowed to compensate for the resulting loss of system capacity by increasing power levels or otherwise adjusting their system's parameters in other portions of the 1610-1621.5 MHz band.

20. We also clarify, however, that we will not authorize mobile earth terminals capable of global roaming, unless equipped with position determination capabilities adequate to prevent transmissions at locations in other countries at which they are not authorized to transmit, or upon a showing that other comparably effective methods of preventing unauthorized transmissions are in place. This safeguard will ensure that U.S.-authorized Big LEO systems do not become a source of unauthorized and interfering transmissions in other countries, and should facilitate international coordination of Big LEO systems.

21. We deny Constellation's and TRW's requests to reconsider the out-of-band emission limits adopted to protect radio astronomy services. Although Constellation correctly observes that the rules adopted provide greater protection to radio astronomy than under the general principle of ITU RR 344,<sup>14</sup> we conclude that the provisions of the radio regulations specifically applicable to the 1610-1626.5 frequency bands, and specifically ITU RR 733E,

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<sup>13</sup> We note that in the Big LEO Order, we indicated that position determination capability may be required in connection with the provision of enhanced 911 services for terminals capable of interconnecting with the public switched telephone network, and indicated that such issues could be addressed in connection with the Commission's proceeding on enhanced 911 services. See Enhanced 9-1-1, Notice of Proposed Rule Making in CC Docket 94-102, 9 F.C.C.Rcd. 6170 (1994). Accordingly, we express no view at this time concerning whether a mobile earth terminal with no capability for position determination would comply with any policies or rules adopted in that proceeding.

<sup>14</sup> RR 344, if applied literally, would appear to contemplate affording the radio astronomy sites the same type of protection that would be afforded a Big LEO mobile earth terminal from transmissions by another Big LEO mobile earth terminal. While such an analysis may provide meaningful protections where radio stations involving single channel analog signals are involved, it appears ill-suited to digital multiple access systems, such as the Big LEO systems. Accordingly, we do not view the more specific limitations of RR 733E as inconsistent with the general principle of RR344.

contemplate a greater degree of protection.<sup>15</sup> We also decline to adopt the alternate out-of-band emission limits proposed by TRW and LQP, limits which could have the effect of nullifying the protections for radio astronomy sites adopted in the Big LEO Order. To the extent LQP and TRW believe that adequate protection to radio astronomy sites can be achieved through the use of a fixed emission limit, rather than fixed protection radii, our rules allow use of such limits if coordinated with radio astronomy interests. It is our experience that radio astronomy interests are receptive to reasonable adjustments in protection limits if substantial benefits to the public can be achieved, and that they are mindful that the public can benefit, if, for example, the costs of radio equipment can be reduced while maintaining reasonable protections to radio astronomy. These issues are best addressed under the coordination procedures adopted in the Big LEO Order.

22. Because it does not appear that there is currently any uncertainty or any controversy which would be resolved, however, we decline to issue the clarifications TRW seeks concerning what role the Commission would play in any dispute which may arise concerning the adequacy of protection to radio astronomy by beacon-actuated systems.<sup>16</sup> Furthermore, we fully expect that the parties will cooperatively resolve any issues that arise in connection with the use of a beacon-actuated system. Therefore, we see no reason to alter the requirements of our rules concerning coordination with radio astronomy.

23. Miscellaneous Inter-Service Sharing Issues. Sections 25.213 (c) and (d) of the rules adopted in the Big LEO Order incorporate by reference or refer to a number of ITU regulations concerning protection of aeronautical radionavigation systems and fixed stations. TRW and Constellation raise a number of issues concerning these rules, argue that they may create unnecessary ambiguity, and request that we delete or revise substantial portions of the rules.

24. We will delete these rule sections as unnecessary. Relevant provisions have been incorporated separately in the Commission's rules.<sup>17</sup> Accordingly, deletion of these two subsections is a non-substantive editorial action and should not be construed as altering the requirements arising under the Commission's rules or international regulations. To the extent

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<sup>15</sup> We also note that RR 733E, which is a note to the table of frequency allocations in the ITU regulations, is referenced not only in the 1610.6-1613.8 frequency bands in which radio astronomy is a primary allocation, but also in the adjacent bands of 1610-1610.6 and 1613.8-1626.5. This method of notation indicates that RR 733E's protections of radio astronomy are intended to be applied to emissions from services operating in the adjacent bands.

<sup>16</sup> Moreover, contrary to TRW's contentions, we do not believe that any clarification of our authority to waive our rules is required.

<sup>17</sup> See Allocation of the 1610-1626.5/2483.5-2500 MHz Band to Mobile Satellite Service, 9 F.C.C.Rcd. 536 (1993), recon. granted in part, 10 F.C.C.Rcd. 3169 (1995).

TRW's and Constellation's requests seek statements as to the proper interpretation of ITU Radio Regulations with respect to services to be provided internationally, we believe such issues should be addressed as necessary in the context of individual coordinations, and those requests are, therefore, denied.

25. TRW also seeks a declaratory ruling that Section 74.396 of our rules is intended to protect Big LEO operations in the 2483.5-2500 MHz range from out-of-band emissions from ITFS and MMDS systems. We are unaware of any controversy such a ruling would resolve, or of any existing uncertainty concerning this matter. Accordingly, we decline to issue the requested declaratory ruling. As we concluded in the Big LEO Order, new out-of-band emission limits would be premature at this time with respect to these particular services.

## **B. Licensing Policies and Intra-Service Issues**

26. LEO Design Requirement/Eligibility to File for Big LEO Frequencies. In the Big LEO Order, the Commission adopted a requirement that applicants for MSS in the 1.6/2.4 GHz bands specify a LEO design. It observed that geostationary orbit ("GSO") systems have a proven ability to deliver telecommunication service, but concluded that several potential technical advantages of LEO service warranted a LEO design requirement. The Commission observed that LEO systems are capable of voice transmissions with significantly shorter delays, that they possess inherent advantages with respect to coverage, and that they are more conducive to the use of small, lightweight, low- power, handheld transceivers. The Commission concluded that primary use of the spectrum should be reserved for LEO systems, in order to provide an opportunity for development of this potentially more efficient technology. The Commission indicated, however, that it would consider authorizing a GSO system in the bands upon a showing that its operations would not cause interference to or affect LEO MSS operations.

27. Several parties seek reconsideration on this issue. AMSC argues that the LEO design requirement is ill-considered and unsupported by the record. It argues that the Commission incorrectly based its conclusions on LEO systems' alleged novelty, superior coverage capabilities, and superior ability to provide service to hand-held transceivers. AMSC observes that LEO technology is not novel, that GSO systems are as capable as LEO systems of providing the coverage required under the rules adopted by the Commission, and that future GSO systems will be able to provide service to hand-held receivers. AMSC also submits a detailed list of potential technical and regulatory advantages of GSO systems, advantages which Constellation contests.

28. Constellation, LQP, Motorola, and TRW, on the other hand, argue that the eligibility standard is not sufficiently stringent. Constellation and Motorola argue that the Commission should have limited eligibility to apply for frequencies in the 1.6/2.4 GHz band to new entrants, entities not already licensed to provide MSS, or some other class of entities that would make AMSC ineligible to apply to use Big LEO spectrum. Motorola observes that

doing so would prevent AMSC from lengthening its head start in the MSS industry, and provide a level playing field for competition among MSS systems. Motorola notes that AMSC is already authorized to provide MSS in 27 MHz of spectrum in the 1545-1559 MHz/1646.5-1660.5 MHz bands, and is also seeking authority to use an additional 33 MHz of spectrum in the so-called "lower L-Band," specifically at 1530-1544/1626.5-1645.5 MHz, for MSS. LQP argues that the Commission's indication in the Big LEO Order that it would "consider authorizing a GSO system in these bands upon a showing that its operations would not cause interference to or affect LEO operations," is arbitrary and capricious because it is directly contrary to the LEO eligibility requirement, and is unsupported by the record. TRW argues that the Commission should clarify this statement by emphasizing that GSO systems will only be authorized if they would have no demonstrable effect on both actual and potential LEO system capacity.

29. We decline to alter the LEO system design requirement adopted in the Big LEO Order. LEO systems possess inherent design advantages that may prove desirable in providing mobile satellite services to the public. Our statements in the Big LEO Order concerning these technical advantages were not intended, however, to suggest that LEO systems are superior to GSO systems. We fully expect that, as with many competing technologies, GSO and LEO systems will each have distinct advantages and disadvantages which will render neither technology superior for all uses. While LEO design advantages (such as shorter signal delay) may, as AMSC argues, prove a matter of indifference to consumers, consumers are in the best position to make this decision. They should be given the opportunity to do so as promptly as possible. Consistent with our mandate under the Communications Act to promote the "wider and more effective use" of radio, we conclude that the LEO design requirement in the 1.6/2.4 GHz band is likely to result in consumers having the widest range of choices in service available at the earliest possible date. This is particularly true since these bands are not the only bands available for the provision of MSS. We have already authorized AMSC to provide MSS with a GSO satellite.<sup>18</sup> Furthermore, the 1.6/2.4 GHz bands present a significant opportunity for development of LEO MSS, since in these bands a number of the international coordination considerations which contributed to prior decisions to foreclose LEO operations in other bands are absent.<sup>19</sup>

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<sup>18</sup> See AMSC Final Decision, 7 F.C.C.Rcd. 266 (1992). As several of the LEO applicants observe, we declined to permit LEO operations in the bands in which AMSC was authorized to operate because, among other things, it appeared that doing so would slow the implementation of MSS in those bands. We expressly indicated, however, that we would pursue authorizing LEO systems in other bands.

<sup>19</sup> See AMSC Final Decision, 7 F.C.C.Rcd. 266, 272-273 (1992)(listing factors that weigh against authorizing LEO systems in the particular bands at issue, including loss of priority in international notification procedures and difficulties in coordinating with already operational GSO systems).

30. We decline also to establish more stringent eligibility standards designed to foreclose AMSC or similarly situated entities from pursuing a LEO system in the 1.6/2.4 GHz bands. Although the Commission has in a number of instances adopted incentives for initiation of service by new entrants, there is no evidence in the record to indicate that new entrants would provide superior service to the public. Furthermore, each of the applicants here is a new entrant into the LEO MSS industry. To the extent that the petitions for reconsideration raise concerns that applicants with interests in potentially competing mobile and/or satellite services have incentives to act anti-competitively, there is currently no evidence of any such behavior. Furthermore, these potential concerns are either outweighed by the benefits of licensing entities with experience in related areas of communications, or are adequately addressed by the competitive safeguards inherent in our policy of accommodating multiple LEO MSS systems.

31. We also decline to retract our statement that we would "consider" authorization of a GSO system in the 1.6/2.4 GHz bands. The Commission's rules expressly provide for waiver.<sup>20</sup> However, applicants requesting a waiver of the LEO requirement will be required to justify their request with relevant, detailed and comprehensive evidence. We would expect that during the development and initial operation of the LEO MSS systems, such applicants demonstrate, at a minimum:

- a) That no other spectrum is allocated or proposed to be allocated by which the GSO service they propose, or a reasonably comparable service, could be provided.
- b) That such services can be provided without interference to LEO systems.
- c) That such services will not adversely affect the capacity of both authorized and potential LEO MSS systems.

Such evidence would provide a basis for reasoned consideration of any requested waivers.

32. Intra-Service Sharing Plan. AMSC urges the Commission to reverse its conclusion that the Big LEO spectrum is capable of effectively accommodating only five licensees. It argues that there is no record support for this conclusion. Motorola opposes AMSC's request as premature. It argues that the Commission should defer action on AMSC's request until it finally determines whether all the applicants are financially qualified, because if one applicant is not financially qualified the issue will be moot.

33. We believe the record supports our conclusion that the Big LEO spectrum is

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<sup>20</sup> See 47 C.F.R. § 1.3.

capable of accommodating effectively only five licensees.<sup>21</sup> However, we agree with Motorola that more information on the technical ability of the CDMA systems to share frequencies should become available to the Commission and the other applicants as the licensed systems are constructed and placed in operation. In addition, this issue may well be rendered moot if one or more applicants does not establish its financial qualifications. We therefore decline to address this issue further at this time.

34. Effect of Deferring a Financial Showing. AMSC seeks clarification that applicants who defer their financial showings share "full rights" with other applicants. AMSC asserts that since all the applicants met the initial June 1991 cut-off date together, they must be licensed or dismissed together. A contrary outcome, AMSC argues, would violate "principles of administrative fairness" and the provisions of Section 309 of the Communications Act that, as construed in Ashbacker Radio Corp. v. FCC,<sup>22</sup> "require simultaneous selection proceedings." LQP, TRW, and Motorola argue that the Commission's bifurcated processing plan is fully consistent with precedent and statutory provisions. Constellation observes, and AMSC agrees, that clarification of the role of deferred applicants in inter-system coordination with licensed Big LEO systems would be helpful.

35. The Big LEO Order addressed the treatment of those applicants in the current "processing group"<sup>23</sup> with respect to any subsequently filed applications. The Big LEO Order clearly indicated that applicants that do not establish their financial qualifications until January 31, 1996, will have the same rights as all other applicants in the current processing group with respect to potential future applicants. We stated explicitly that "new applications for Big LEO systems will not be considered until after action on the six pending applications is completed."<sup>24</sup> Therefore, no clarification is required in this regard. The Big LEO Order made clear that no mutual exclusivity would arise between the six applications in the current processing groups and any later-filed applications.

36. Concerning mutual exclusivity among the six applicants in the current

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<sup>21</sup> As detailed in the Notice of Proposed Rule Making in this proceeding, the spectrum requirements for the Big LEO systems were derived from the statements of the parties to this proceeding in various proposals to the Commission, and on the detailed technical information compiled in connection with the negotiated rule making proceeding.

<sup>22</sup> 326 U.S. 327 (1945).

<sup>23</sup> By applicants in the current processing group, we mean those applicants that filed an application by the deadline for filing Big LEO applications to be considered concurrently. See *supra.*, ¶¶ 4-10. Establishing such a deadline is within the Commission's authority. See Ashbacker, n.9.

<sup>24</sup> Big LEO Order at ¶ 41.

processing group, we stated that applicants in the second tier (*i.e.*, that do not establish their financial qualifications until January 31, 1996) "may find their applications are [in a] mutually exclusive situation."<sup>25</sup> This statement was explicitly limited to second-tier applicants. We also clearly indicated that applicants in the first tier (*i.e.*, applicants that established their financial qualifications by November 16, 1994) would, as part of a "two-tiered eligibility" scheme, be afforded "processing priority." Taken together, these statements cannot be reasonably construed to indicate that first-tier applicants may find themselves in a mutually exclusive situation with second-tier applicants. To make this abundantly clear, however, we hereby explicitly state that "first-tier" applicants will not find themselves in a mutually exclusive situation due to "second-tier" applicants who establish their financial qualifications. First-tier applicants are insulated from any mutual exclusivity that may arise as any "second-tier" applicants, such as AMSC, establish their financial qualifications. Thus, if each of the three "second-tier" applicants establishes that it is financially qualified, leaving us with one more request for a license than the two licenses remaining available, we will apply selection procedures for mutually exclusive applicants only to the second-tier applicants.

37. We disagree with AMSC's assertion that this two-tiered processing scheme violates Section 309 of the Communications Act, as construed in Ashbacker. It would have clearly been within our discretion to require that each of the six Big LEO applicants submit a financial showing by November 16, 1994, particularly in light of our concerns that the benefits accruing to the public from prompt initiation of Big LEO service not be delayed.<sup>26</sup> Had we done so, applicants failing to submit an adequate financial showing would have had their applications dismissed,<sup>27</sup> and would have been required to pursue any later authorization as part of a subsequent processing round in which the potential applicants could include new applicants. Under these circumstances, the processing mechanism adopted, which in effect limited the rights of potential new applicants to file applications mutually exclusive with AMSC's, did not in any way violate AMSC's Ashbacker rights. Moreover, Ashbacker cannot be reasonably construed as in any way foreclosing the Commission's ability to distinguish in its procedural rules between applicants that are immediately ready, willing, and able to construct radio facilities, and those that are not.<sup>28</sup>

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<sup>25</sup> Big LEO Order at ¶ 41.

<sup>26</sup> The Commission has authority to establish eligibility criteria that distinguish between the applicants before it based on factors relevant to the public interest. U.S. v. Storer Broadcasting Company, 351 U.S. 192 (1956).

<sup>27</sup> We note that AMSC has not alleged that it would have been able to meet our financial qualifications requirements on November 16, 1994.

<sup>28</sup> Because there does not appear to be any concrete issue which has arisen concerning inter-system coordination between the licensed Big LEOs and the three other applicants, we decline at this time to clarify the role applicants may play in intersystem coordinations. See 47 C.F.R. § 1.2.

38. Spectrum Sharing Between MSS Systems -- Emissions Mask. In the Big LEO Order, the Commission declined to adopt out-of-band emissions limits more stringent than those already contained in Section 25.202(f) of the rules. We indicated, though, that the parties were free to negotiate guardband agreements once their system parameters became evident. Motorola argues that the Commission should develop more stringent out-of-band emissions limits, or adopt principles for developing such limits. Constellation, LQP, and TRW oppose this request, noting that Motorola is seeking protection as a primary service for its downlinks in the TDMA/FDMA band, which have only secondary allocation priority. Motorola replies that the existing limit on out-of-band emissions in Section 25.202(f), because the extent of protection varies based on the bandwidth of the primary emission, is unsuitable for providing consistent limits, particularly given the variations in the bandwidths proposed by the CDMA systems. It observes that this is true even for its uplinks, which are operating under a primary allocation.

39. We decline to address comprehensively at this time the issue of emissions limits between the CDMA and TDMA/FDMA systems. However, this does not mean we are unconcerned with this issue. We therefore encourage the parties to investigate fully all potential means of mitigating the potential interference that may arise when mobile terminals are near one another (such as pulse shaping before modulation, the use of filters, and development of more robust TDMA/FDMA receivers). The public interest would be served by agreement among the parties for any necessary mitigation. We therefore urge that negotiations be undertaken well before any party seeks authorization for mobile earth terminals.<sup>29</sup>

40. Feeder Links. In the Big LEO Order, the Commission indicated that it would assign feeder links<sup>30</sup> to applicants for Big LEO systems, conditioned on sufficient spectrum being made available through subsequent domestic and international proceedings to satisfy the requirements of all Big LEO licensees. We gave applicants the option, however, of not specifying specific feeder links. Each of the applicants chose to apply for specific feeder link bands, and Motorola, TRW, and LQP each received conditional grants in response to those requests.

41. TRW seeks clarification that, in the event the Commission makes frequencies

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<sup>29</sup> The CDMA applicants observe that the effect of their out-of-band emissions is on TDMA/FDMA downlinks, and that those downlinks operate on a secondary basis. Motorola argues that out-of-band emissions affect both uplinks and downlinks. We decline to simply ignore the potential for harmful interference to the system.

<sup>30</sup> Feeder links interconnect a mobile satellite system with other communications networks or user transceivers by means of one or more central Earth stations. Because these Earth stations are at fixed locations, feeder links use frequencies allocated to the fixed-satellite service.

below 15 GHz available for Big LEO feeder links, TRW should be provided an opportunity to modify its system to specify the lower frequencies. TRW's conditional feeder link authorization is for feeder links in the 20/30 GHz frequency bands. LQP and Constellation oppose this request.

42. We fully intend to allow proponents of Big LEO systems to modify their feeder link proposals if it becomes apparent, based upon the outcome of the World Radiocommunication Conference (WRC-95)<sup>31</sup> and relevant domestic proceedings, that the frequencies for which they have sought conditional assignments, or substantial portions of those frequencies, will not be available for feeder link use. We intend to treat such modifications as minor modifications.<sup>32</sup> We do not intend, however, to allow proponents of Big LEO systems to modify their feeder link proposals simply because they believe a different set of frequencies would prove more desirable than those they have requested. We would consider such a request an unauthorized major modification. Therefore, if we are able, due to the completion of relevant international and domestic proceedings, to make an unconditional feeder link authorization that adequately addresses the needs of the licensee, we do not anticipate viewing favorably a request by the holder of that authorization for feeder links in a different frequency band. Such a request could cause unnecessary congestion in other frequency bands, make it difficult to obtain coordination with other systems, and, ultimately, slow the deployment of Big LEO service.

43. Mobile Earth Station Licensing and Milestones. Constellation and LQP propose several clarifications and technical corrections to our earth station licensing rules, specifically to sections 25.203(j) and (k), concerning frequency coordination requirements for feeder links, section 25.114(c)(6)(iii), concerning feeder link frequencies, and section 25.136(b), concerning mobile earth terminals. The other petitioners support or do not oppose these changes. The proposed changes will simplify and clarify our rules and will therefore be adopted.

44. LQP requests clarification of the construction milestone requirements for Big LEO licensees, arguing that milestones should begin to run from initial licensing, not from the grant of an unconditional license. Constellation and TRW oppose this request. TRW and Constellation, on the other hand, urge that milestones should be flexibly applied. TRW

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<sup>31</sup> The outcome of WRC-95 was generally favorable to the deployment of Big LEO feeder links. Thus, it does not appear at this time that the WRC-95 outcome will require consideration of a request to move TRW's feeder links to frequencies below 15 GHz. However, changes in TRW's authorization will be required for feeder link operations either in the 19/28 GHz bands or for reverse band working in the 19/15 GHz bands.

<sup>32</sup> Accordingly, we hereby delegate authority to the International Bureau to waive 47 C.F.R. § 25.116 pursuant to the guidelines in this Memorandum Opinion and Order.

specifically requests that licensees be allowed to postpone compliance with milestones if they have already launched a sufficient number of satellites to comply with the Commission's national and global coverage requirements, if the launch of additional satellites would simply increase system capacity, and if the licensee recertifies its commitment to deploy the full constellation initially authorized. TRW also requests that, contrary to common practice in satellite licensing, missing a milestone should not automatically render an authorization null and void. Instead, TRW suggests, the Commission should issue an order to show cause why the license should not be revoked. Motorola and LQP oppose TRW and Constellation's requests.

45. LQP's request for clarification that construction milestones will run from the initial authorization, even if that authorization includes a conditional feeder link authorization, is denied. Although licensees are free to begin construction prior to the unconditional authorization of feeder links, they are not required to do so, and any construction is entirely at the licensee's risk. Therefore it is appropriate to set milestones only once that condition is removed.<sup>33</sup>

46. Concerning TRW's request that we announce now a policy of waiving construction milestones upon a showing that a licensee has launched sufficient satellites to comply with our coverage requirements, and has certified that it intends to launch additional satellites at some date in the future, we decline to adopt a blanket waiver policy concerning such situations. While the type of showing TRW contemplates would weigh in favor of granting milestone extensions, we can also anticipate circumstances in which such a showing should be considered inadequate, particularly where granting such a request would have the effect of requiring that other Big LEO systems limit system capacity to protect parts of a competing system -- parts that will not be constructed on an expeditious basis. Moreover, extended construction periods necessarily have the effect of indefinitely foreclosing entry by third parties who may be ready and willing to initiate service expeditiously. Accordingly, we decline to announce an exemption from our construction milestone requirements.

47. We also decline to adopt TRW's proposal that we use "show cause" procedures to enforce construction milestones. Existing procedures, which permit the filing of requests to extend milestones,<sup>34</sup> provide adequate opportunities to address any difficulties that may arise in system deployment.

48. Satellite Replacement Policies. The Big LEO Order adopted a blanket licensing approach to the space segment of Big LEO systems. Specifically, the Commission

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<sup>33</sup> For this reason, the licenses issued to LQP, Motorola, and TRW, n.5 supra, did not set milestones, but instead indicated that such milestones will be set once unconditional feeder link authorizations are made.

<sup>34</sup> See 47 C.F.R. § 25.117.

indicated it would issue a license with a term of ten years to cover the multiple satellites in each Big LEO system, along with any in-orbit spare satellites. It also adopted a rule requiring that licensees file applications for renewal of that license during a 60 day filing window opening 90 days prior to the end of the seventh year of the license term, and closing 30 days prior to the end of the seventh year of the license term.<sup>35</sup>

49. Constellation, LQP, and Motorola seek reconsideration or clarification of these requirements. In particular, they fear the rules will be construed in a manner that hinders gradual improvement in satellite technology over time. TRW, on the other hand, argues that existing procedures for entertaining modifications of licenses are adequate to address the concerns raised. Constellation also raises concerns with the renewal expectancy afforded Big LEO systems.

50. In response to these concerns we hereby clarify that, in adopting the license renewal provisions for Big LEO services, we did not intend to foreclose system improvements or the authorization of such improvements through the normal procedures for entertaining license modifications. Our description of renewal applications in the Big LEO Order as "next generation Big LEO systems," was not intended to require Big LEO licensees seeking improvements in one or more satellites to delay doing so until the license renewal window. Such improvements can be implemented earlier through the normal process for license modification. We also clarify, in response to concerns raised by Constellation, that a licensee may launch "technically identical replacement satellites" under the certification procedure of Section 25.143(c) to replace either "operational" or authorized "in-orbit spares."

51. We decline at this time to revisit issues of "renewal expectancy" for Big LEO satellite systems, as urged by Constellation. We are not prepared at this time to offer a comprehensive policy pronouncement on such issues, and believe that for the time being such issues are best addressed in this service -- as they are in many new services, and in a number of existing services -- on a case-by-case basis. However, we anticipate that such issues may warrant further discussion as Big LEO service is deployed, and we invite the submission of any concrete proposals the Big LEO licensees may wish to offer.

### **C. International Issues**

52. Extending the Spectrum Sharing Plan to All of North America. TRW seeks a specific Commission commitment to undertake coordination efforts to extend the U.S. inter-system spectrum sharing plan throughout North America. TRW observes that coverage to

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<sup>35</sup> The text of the Big LEO Order can be construed as setting a four-month filing window closing 30 days after the end of the seventh year of the license term. Big LEO Order at ¶ 186. This construction is inconsistent with the express terms of the rule adopted, 47 C.F.R. § 25.120(e); we hereby clarify that we intended the terms of the rule to be controlling.

Alaska and U.S. territories in the Caribbean may be disrupted if Canada or Mexico adopts, for example, a plan which would authorize only FDMA/TDMA transmissions in the 1613.8-1626.5 MHz bands. Constellation supports TRW. LQP and Motorola oppose this request, arguing that the Commission should not seek to give extraterritorial effect to domestic regulations.

53. The Commission's rules do not specify the position which the Commission will take in international coordinations, nor do they purport to have any extraterritorial application. Accordingly, we do not believe reconsideration of this point is appropriate. However, as a general matter, global satellite systems will be more likely to succeed if individual administrations adopt complementary systems for licensing them, and we fully intend to express this view in discussions with North American and other administrations. Furthermore, adoption by other administrations of our domestic inter-system sharing plan could, in many instances, provide a simple means of assuring a complementary licensing system in other countries, and speed the benefits of Big LEO MSS to the public. However, there may well be other means of achieving the goal of a complementary licensing system, and any decision on the issue of what, if any, method of inter-system sharing best serves its national interests rests with the particular administration.

54. Exclusionary Arrangements in Foreign Countries. TRW and Motorola argue that the Commission should adopt limitations on Big LEO licensees' ability to enter into exclusive arrangements concerning communications to or from the United States that have the effect of foreclosing other Big LEO licensees from providing service to foreign markets. They argue that such limitations have been adopted in connection with separate satellite systems, and are required to ensure that Big LEO service can be truly global. LQP does not oppose this request, but argues that any such limitation must be crafted so that it does not require extension of the domestic band segmentation plan to global markets.

55. We will adopt a rule that applies to the Big LEO licensees the restrictions typically included in separate system authorizations. The restrictions are limited in nature, applying only to the handling or interchanging of traffic to and from the United States, and we intend to construe them bearing in mind that spectrum coordination and availability in particular countries may limit the ability of Big LEO licensees to provide service to those countries.

#### **D. Miscellaneous Matters**

56. In its order granting LQP a license, the International Bureau declined to grant LQP's request for a waiver to allow operations in the United States in the 2483.5-2500 MHz band at power flux density (p.f.d.) levels in excess of those specified in international Radio Regulations, noting that, because of the potential effect on other applicants of such a request,

the issue of p.f.d. levels would be better addressed in this rule making proceeding.<sup>36</sup> The International Bureau noted that recommendations prepared for consideration at the then upcoming World Radiocommunication Conference (WRC-95) addressed the p.f.d. levels appropriate in this band. Consistent with these recommendations, WRC-95 adopted p.f.d. levels that would reduce the number of international coordinations required.<sup>37</sup> The levels adopted are intended to be triggers for the international coordination of MSS systems with fixed and mobile services operating in the 2483.5-2500 MHz, and became effective at the close of the WRC-95. Accordingly, the Commission will apply these revised p.f.d. levels in determining whether international coordination is required for MSS systems in this band.

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<sup>36</sup>LQP Order at ¶21.

<sup>37</sup> See Final Acts of the World Radio Conference 1995, Resolution 46 (Rev. WRC-95), Annex 2, A2.1.2.3.1. The revised power flux density levels, at the Earth's surface and for all conditions and for all methods of modulation, are as follows:

-150 dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

-150 + 0.65(δ - 5)dB(W/m<sup>2</sup>) in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane; and

-137 dB (W/m<sup>2</sup>) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

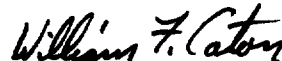
These levels relate to the power flux density which would be obtained under assumed free-space propagation conditions.

#### IV. ORDERING CLAUSES

57. Accordingly, IT IS ORDERED, that the "Petition for Reconsideration" filed by AMSC Subsidiary Corp. on November 21, 1994, the "Petition for Reconsideration," filed by Constellation Communications, Inc. on November 21, 1994, the "Petition for Clarification and Partial Reconsideration," filed by Loral/Qualcomm Partnership, L.P., on November 21, 1994, the "Petition for Clarification and Partial Reconsideration," filed by Motorola Satellite Communications, Inc., on November 21, 1994, and the "Petition for Partial Reconsideration and Clarification," filed by TRW Inc. on November 21, 1994, ARE GRANTED to the extent indicated in this Memorandum Opinion and Order, AND ARE OTHERWISE DENIED.

58. IT IS FURTHER ORDERED That the Rule Changes in Appendix A shall be effective 30 days after publication in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

  
William F. Caton  
Acting Secretary

## APPENDIX A

Title 47 of the Code of Federal Regulations, Part 25, is amended as follows:

By deleting subsection (c)(6)(iii) of Section 25.114.

By revising subsection (b) of Section 25.136 as follows:

(b) User transceiver units in this service are authorized to communicate with and through U.S. authorized space stations only. No person shall transmit to a space station unless the user transceiver is first authorized by the space station licensee or by a service vendor authorized by that licensee, and the specific transmission is conducted in accordance with the operating protocol specified by the system operator.

By adding a new subsection (h) to Section 25.143, as follows:

(h) Prohibition of Certain Agreements. No license shall be granted to any applicant for a space station in the mobile satellite service operating at 1610-1626.5/2483.5-2500 MHz if that applicant, or any persons or companies controlling or controlled by the applicant, shall acquire or enjoy any right, for the purpose of handling traffic to or from the United States, its territories or possession, to construct or operate space segment or earth stations, or to interchange traffic, which is denied to any other United States company by reason of any concession, contract, understanding, or working arrangement to which the Licensee or any persons or companies controlling or controlled by the Licensee are parties.

By revising subsections (j) and (k) of Section 25.203 as follows:

(j) Applicants for non-geostationary 1.6/2.4 GHz Mobile-Satellite Service/Radiodetermination satellite service feeder links in the bands 17.7-20.2 GHz and 27.5-30.0 GHz shall indicate the frequencies and spacecraft antenna gain contours towards each feeder-link earth station location and will coordinate with licensees of other fixed-satellite service and terrestrial-service systems sharing the band to determine geographic protection areas around each non-geostationary mobile-satellite service/radiodetermination satellite service feeder-link earth station.

(k) An applicant for an earth station that will operate with a geostationary satellite or non-geostationary satellite in a shared frequency band in which the non-geostationary system is (or is proposed to be) licensed for feeder links, shall demonstrate in its applications that its proposed earth station will not cause unacceptable interference to any other satellite network

that is authorized to operate in the same frequency band, or certify that the operations of its earth station shall conform to established coordination agreements between the operator(s) of the space station(s) with which the earth station is to communicate and the operator(s) of any other space station licensed to use the band.

By deleting subsections (c) and (d) of Section 25.213.